

AMENDMENTS TO THE CLAIMS

1. (Currently amended) A process of detecting an elongated oligonucleotide elongation, the process comprising:

- (a) providing an oligonucleotide;
- (b) combining a detectable moiety and the oligonucleotide to form a labeled oligonucleotide, the labeled oligonucleotide characterized by an organometallic coordinate_covalent bond between the detectable moiety and the oligonucleotide;
- (c) adding the labeled oligonucleotide to an oligonucleotide elongation mixture;
- (d) initiating an elongation reaction in the oligonucleotide elongation mixture; and
- (e) assaying for the labeled oligonucleotide as part of the elongated oligonucleotide in the oligonucleotide elongation mixture to detect the elongated oligonucleotide elongation.

2. (Canceled)

3. (Original) The process of claim 1 wherein the detectable moiety comprises a fluorophore.

4. (Original) The process of claim 1 wherein the detectable moiety comprises a metal-containing fluorescent compound.

5. (Original) The process of claim 4 wherein the metal-containing fluorescent compound comprises platinum.

6. (Original) The process of claim 4 wherein the metal-containing fluorescent compound comprises a metal selected from the group consisting of: palladium, rhodium, ruthenium, osmium, and iridium.

7. (Currently amended) The process of claim 1 wherein the ~~elongation reaction~~ elongated oligonucleotide is formed by a polymerase chain reaction.

8. (Canceled)

9. (Currently amended) The process of claim 1 wherein the ~~elongation reaction~~ elongated oligonucleotide is formed by a primer extension reaction.

10. (Currently amended) The process of claim 1 wherein the ~~elongation reaction~~ elongated oligonucleotide is formed by a ligase chain reaction.

11. (Currently amended) The process of claim 1 wherein the process further comprises purifying the elongated oligonucleotide containing the labeled oligonucleotide.

12. (Previously presented) The process of claim 1 wherein the step of assaying the labeled oligonucleotide comprises a measurement selected from the group consisting of: fluorescence polarization, fluorescence intensity, and fluorescence resonance energy transfer.

13-14 (Canceled)

15. (Currently amended) A process of detecting an elongated oligonucleotide ~~elongation~~, the process comprising ~~the steps of~~:

- (a) providing an oligonucleotide elongation reaction mixture comprising an oligonucleotide labeled with a fluorescent compound through an organometallic coordinate covalent bond;
- (b) measuring a fluorescence parameter in the oligonucleotide elongation reaction mixture at a first time point to obtain a test measurement of the elongated oligonucleotide containing the oligonucleotide labeled with the fluorescent compound; and
- (c) comparing the test measurement with a reference measurement differing in the elongated oligonucleotide present relative to the test measurement to detect the elongated oligonucleotide ~~elongation~~.

16. (Currently amended) The process of claim 15 wherein the reference measurement is a second measurement of a fluorescence parameter in the oligonucleotide reaction mixture at a second time point.

17. (Currently amended) The process of claim 16 wherein the second time point is before ~~initiation~~ formation of the ~~elongation reaction~~ elongated oligonucleotide.

18. (Currently amended) The process of claim 16 wherein the first and second time points are after ~~initiation~~ formation of the ~~elongation reaction~~ elongated oligonucleotide.

19. (Currently amended) The process of claim 15 wherein the reference measurement is a measurement of a fluorescence parameter in a second oligonucleotide extension reaction mixture having a composition of the oligonucleotide extension reaction mixture.

20-21 (Canceled)

22. (Currently amended) The process of claim ~~24~~ 15 wherein the ~~metal-containing~~ fluorescent compound comprises platinum.

23. (Currently amended) The process of claim ~~24~~ 15 wherein the ~~metal-containing~~ fluorescent compound comprises a metal selected from the group consisting of: palladium, rhodium, ruthenium, osmium, and iridium.

24. (Currently amended) The process of claim 15 wherein the ~~elongation reaction~~ elongated oligonucleotide is formed by a polymerase chain reaction.

25. (Currently amended) The process of claim 15 wherein the ~~elongation reaction~~ elongated oligonucleotide is formed by a reverse transcription reaction.

26. (Currently amended) The process of claim 15 wherein the ~~elongation reaction~~ elongated oligonucleotide is formed by a primer extension reaction.

27. (Currently amended) The process of claim 15 wherein the ~~elongation reaction~~
elongated oligonucleotide is formed by a ligase chain reaction.

28. (Currently amended) The process of claim 15 wherein the fluorescence parameter
is selected from the group consisting of: fluorescence polarization, and fluorescence intensity,
and fluorescence resonance energy transfer.

29-38 (Canceled)

39. (Currently amended) A process of detecting formation of an oligonucleotide
hybrid of a DNA:DNA, DNA:RNA, or RNA:RNA complex, the process comprising:

- (a) providing a hybridization reaction mixture comprising an oligonucleotide labeled
with a metal-containing fluorescent compound through a dual contribution covalent bond;
- (b) measuring a fluorescence parameter under hybridization conditions associated
with the metal-containing fluorescent compound in the hybridization reaction mixture at
a first time point to obtain a test measurement; and
- (c) comparing the test measurement with a reference measurement differing in the
oligonucleotide hybrid present relative to the test measurement to detect the
oligonucleotide ~~hybridization~~ hybrid of a DNA:DNA, DNA:RNA, or RNA:RNA
complex.

40-54 (Canceled)